

## ABSTRACT OF THE DISCLOSURE

An improved mass spectrometer is set forth. The mass spectrometer comprises an ion injector that is configured to provide a plurality of ions for analysis and an ion selection unit that is adapted to receive the plurality of ions from the ion injector and provide only those ions having a selected mass-to-charge ratio for detection/analysis. The ion selection unit includes an outer electrode and a plurality of inner electrodes. The plurality of ions provided by the ion injector are accepted into the interstitial region between the outer electrode and the plurality of inner electrodes. A power supply system is connected to the electrodes of the ion selection chamber. The power supply system is adapted to provide an oscillating voltage to at least one of the plurality of inner electrodes to facilitate separation of ions of the selected mass-to-charge ratio from ions of non-selected mass-to-charge ratios.